



## Childhood acute urticaria in northern and southern Europe shows a similar epidemiological pattern and significant meteorological influences

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### Abstract:

Acute urticaria (AU) is a common condition that often presents in childhood. Although there is a general perception of cyclic annual trends in AU, no one has tried to identify any seasonal variation on its prevalence and incidence, associate environmental influences and impute geographic, ethnical, or even genetic features that may contribute to its onset. We aimed to analyze the influence of climate and geographic parameters on annual fluctuation of AU cases referred to the Emergency Departments (EDs) of Norwich (UK) and Heraklion (Crete, Greece), compare all identifiable potential triggers and severity, and calculate the prevalence and incidence of AU. Record-based data of all children up to 14yr of age referred to both EDs between June 2005 and May 2007 were examined retrospectively. Demographic characteristics and any potential identifiable triggers of AU were recorded and compared. Poisson's regression was utilized to examine any influence of meteorological parameters on AU incidence. Edwards' test for seasonality was applied to identify any significant seasonal trend of the AU incidence within each city. Seven hundred and twenty-nine AU cases were identified (324 in Norwich and 405 in Heraklio), among 56,624 total referrals (28,931 and 27,693 cases, respectively). Respiratory infections were found to be the most commonly associated potential triggers of AU and food allergens the least. AU cases and incidence rates in both cities were equally distributed during the study period. A non-significant seasonal trend in AU incidence (October, April-May) was observed in Norwich, in contrast to a significant seasonal pattern (December, February-May) of AU in Heraklio. Temperature was inversely associated with AU incidence, while the statistically significant effect of relative humidity varied. Acute childhood urticaria shows a similar epidemiological pattern in northern and southern Europe regardless of the expected differences in genetic, geographic, and environmental background. Temperature and humidity are correlated with AU incidence. Seasonality of several acute respiratory viral infections, the most prominent associated trigger of AU, coincides with the observed AU seasonality, suggesting a potential linkage. However, this needs to be elucidated from larger epidemiological studies.

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### Resource Description

#### Exposure : ☐

weather or climate related pathway by which climate change affects health

Meteorological Factors, Meteorological Factors, Temperature

**Geographic Feature:** ☒

resource focuses on specific type of geography

None or Unspecified

**Geographic Location:** ☒

resource focuses on specific location

Non-United States

**Non-United States:** Europe

**European Region/Country:** European Country

**Other European Country :** United Kingdom;Greece

**Health Impact:** ☒

specification of health effect or disease related to climate change exposure

Dermatological Effect, Respiratory Effect, Other Health Impact

**Respiratory Effect:** Other Respiratory Effect

**Respiratory Condition (other) :** acute respiratory viral infections

**Other Health Impact:** hives;acute urticaria

**Population of Concern:** A focus of content

**Population of Concern:** ☒

populations at particular risk or vulnerability to climate change impacts

Children

**Resource Type:** ☒

format or standard characteristic of resource

Research Article

**Timescale:** ☒

time period studied

Time Scale Unspecified